WHAT'S COOKING AT THE ESRGC?

Michael S. Scott, PhD, GISP
Eastern Shore Regional GIS Cooperative
Salisbury University

ESRGC – For more than a decade…

- Established in 2004 as a self-sustaining collaboration between the MSRC, the TCCLESM, and SU
- Multi-pronged service mission
  - Enable state-of-the-art GIS capacity for governments, non-profits, and businesses on Maryland's Eastern Shore
  - Expand GIS capacity for fellow MD state agencies
  - Empower partners through technology transfer
  - Educate the next generation of the GIS workforce
  - Embody the SU commitment to community service

ESRGC – All About the Partnerships…

- We don’t have clients – we have partners
  - Federal Government
  - State Government
  - Local Governments
  - Non-profit organizations
  - Businesses
- Some of these partnerships are long-running but most we try to leave self-sustaining

ESRGC – Workforce Development…

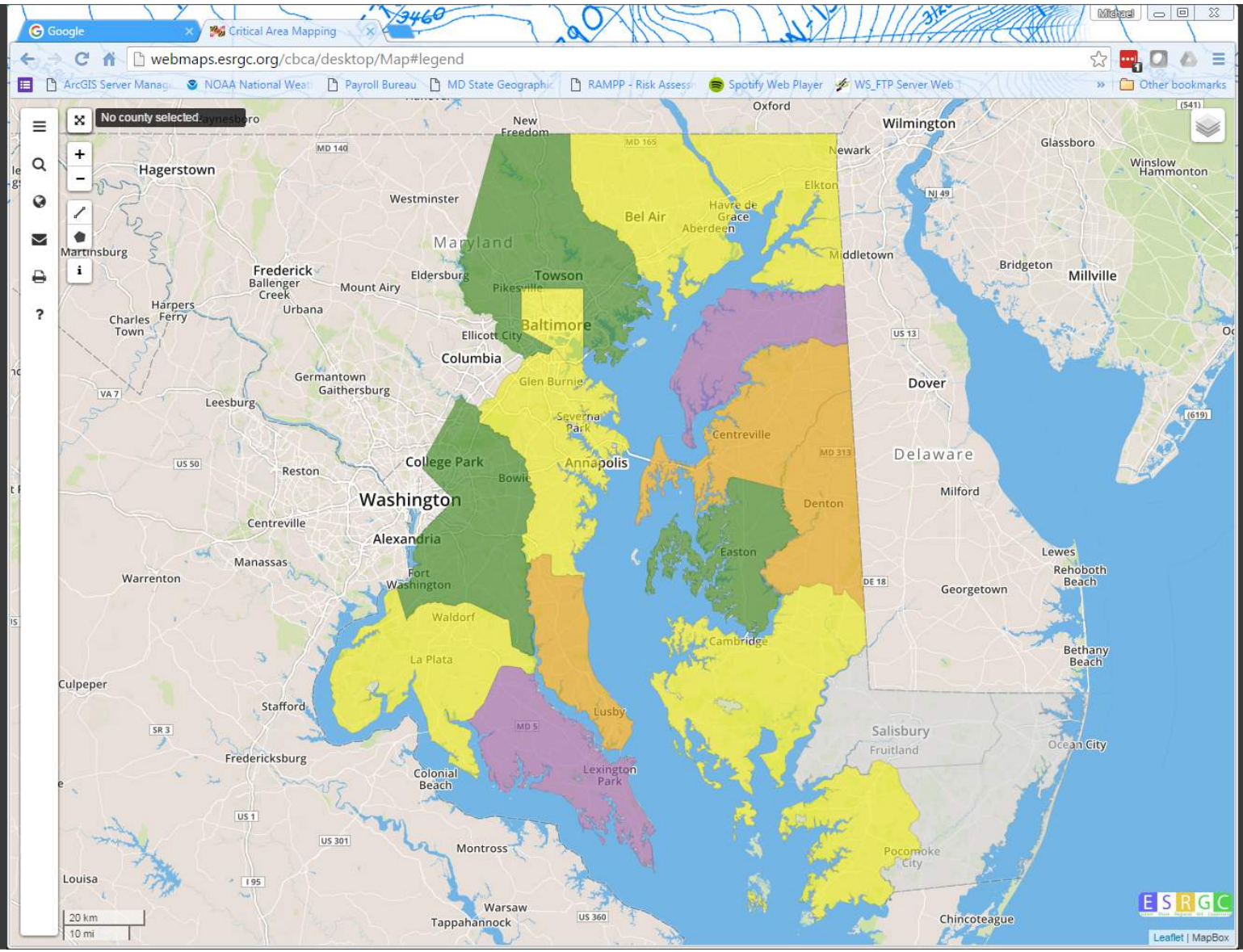
- Facilitated well over 120 GIS internships
  - Under ESRGC staff supervision
  - Within the Department of Geography and Geoscience
  - On-site at a partner location
- Different specializations
  - GIS Technical Interns
  - GIS Programming Interns
  - GIS Management Interns
- More than 90% of our GIS interns have continued on to geospatial careers, most of those in Maryland.

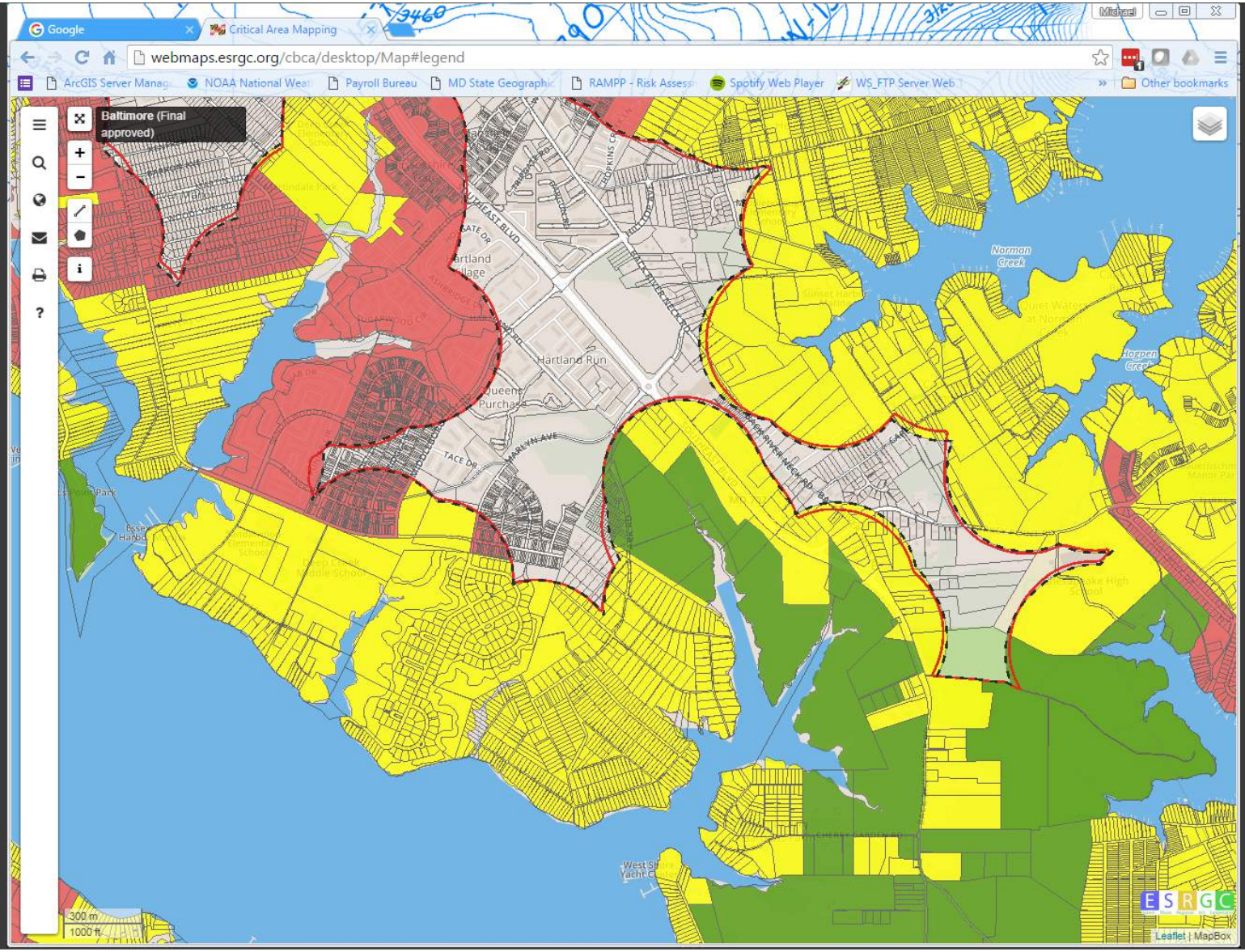
ESRGC – Project Highlights…

- Chesapeake Bay Critical Area Remapping
- Topographic LiDAR Server, Viewer, Training
- Sea-Level Change in the Chesapeake Bay
- Pedestrian Access for Wicomico County School Children
- Open Source GeoDashboards
- Agricultural GIS Project

Chesapeake Bay Critical Area Remapping

- Replacing the 1980s-era paper maps governing development within 1000' of the Bay and its tidal wetlands with a digital product that is
  - Consistently derived
  - Able to be updated/corrected
  - Seamless
  - Able to be superimposed on other maps
- This year, 6 counties will likely have new maps adopted and all counties preliminary mapping will be done


Google
Critical Area Mapping
webmaps.esrgc.org/cbca/desktop/Map#legend
ArcGIS Server Manag
NOAA National Wea
Payroll Bureau
MD State Geographic
RAMPP - Risk Assess
Spotify Web Player
WS_FTP Server Web
Other bookmarks
No county selected.
Hagerstown
Westminster
Maryland
Bel Air
Havre de Grace
Aberdeen
Elkton
Oxford
Wilmington
Newark
Glassboro
Winslow
Hammonton
Middletown
Bridgeton
Millville
Frederick
Ballenger Creek
Mount Airy
Eldersburg
Towson
Pikesville
Baltimore
Ellicott City
Columbia
Harpers Ferry
Charles Town
Martinsburg
Urbana
Germantown
Gaithersburg
Leesburg
Glen Burnie
Severna Park
Annapolis
Centreville
Dover
Delaware
Milford
College Park
Bowie
Reston
Washington
Alexandria
Fort Washington
Manassas
Warrenton
Waldorf
La Plata
Easton
Denton
Cambridge
Lewes
Rehoboth Beach
Georgetown
Bethany Beach
Culpeper
Stafford
Fredericksburg
Colonial Beach
Lusby
Lexington Park
Salisbury
Fruitland
Ocean City
Pocomoke City
Chincoteague
Montross
Louisa
Warsaw
Tappahannock
20 km
10 mi
ESRGC
Leaflet | MapBox


Google
Critical Area Mapping
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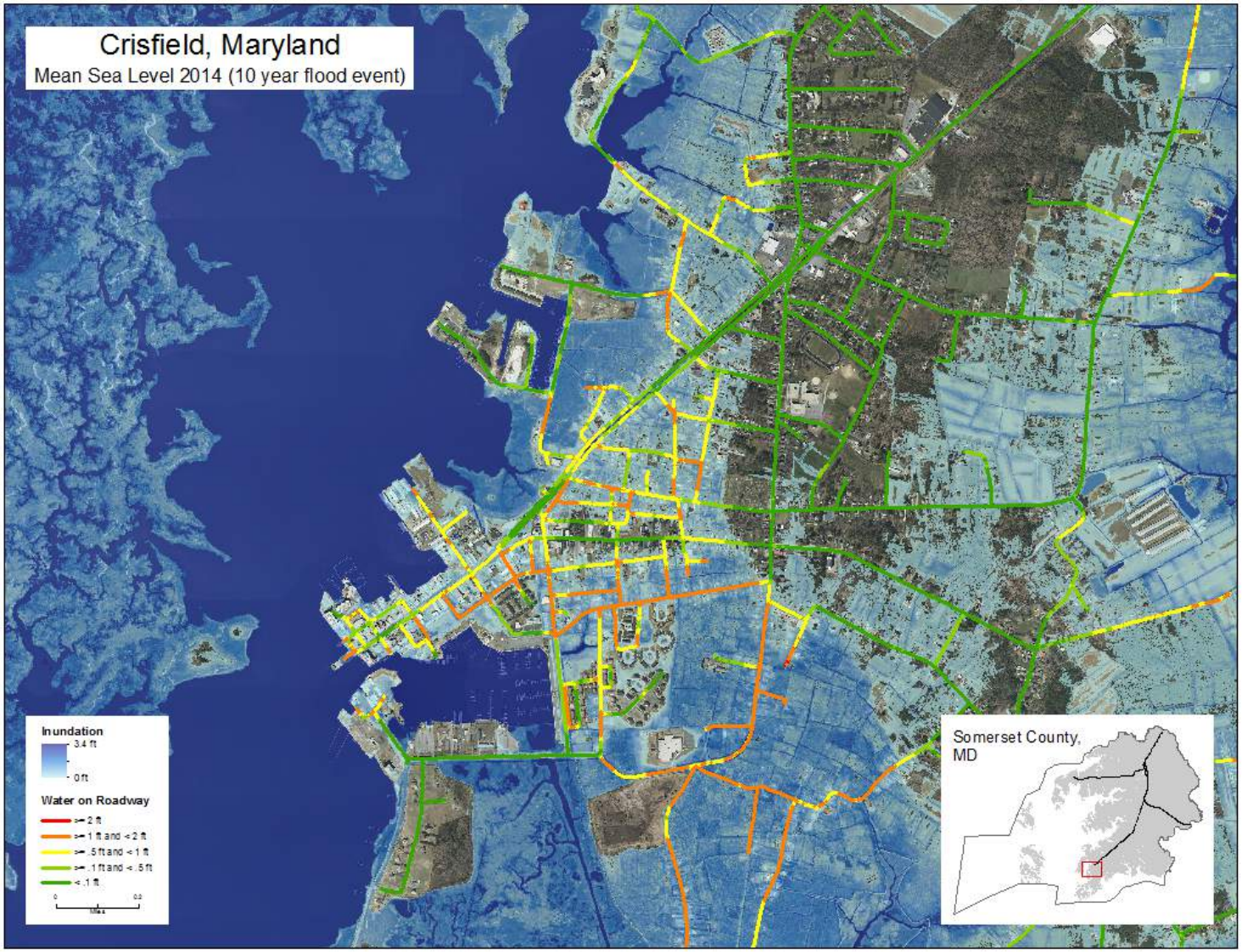
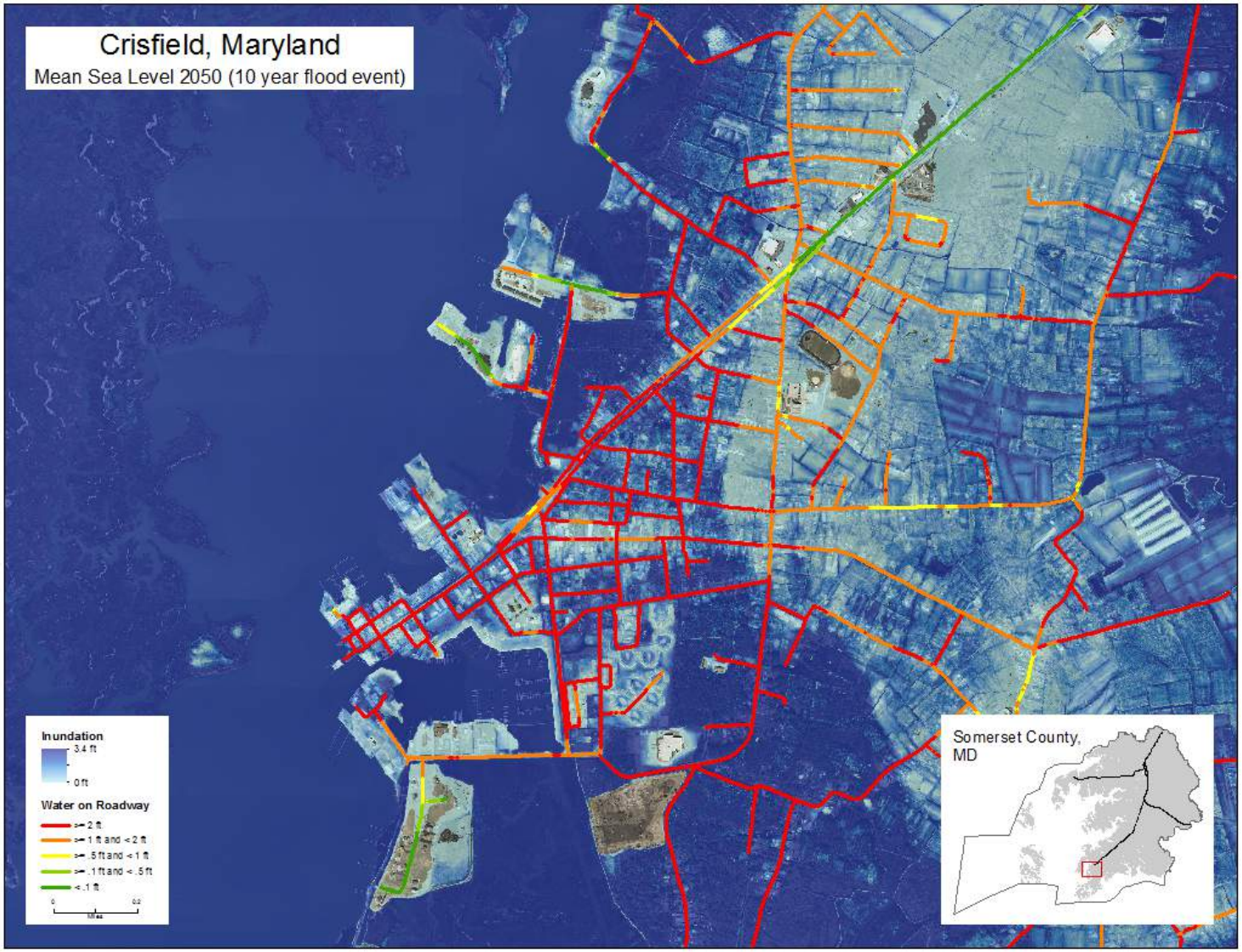
ArcGIS Server Manag
NOAA National Wea
Payroll Bureau
MD State Geographic
RAMPP - Risk Assess
Spotify Web Player
WS_FTP Server Web
Other bookmarks
Baltimore (Final approved)
Hartland Run
Norman Creek
Hopper Creek
300 m
1000 ft
ESRGC
Leaflet | MapBox

Sea-Level Change in the Chesapeake Bay

- Began (and continues) as a prioritization project for MDSHA
- Made three important methodological improvements to SLC modeling
  - Including impact of SLC on periodic flooding
  - Removed one important caveat to bathtub modeling
  - Creation of a vulnerability indicator for road segments
- Now, we've applied the method to specific areas in Somerset and Kent Counties, more to come

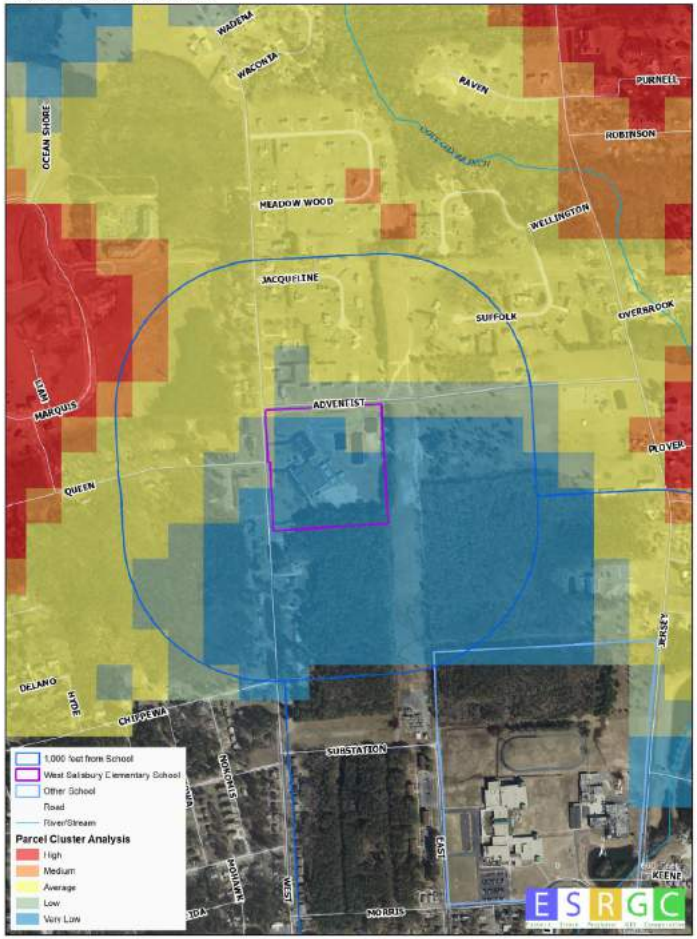

Crisfield, Maryland
Mean Sea Level 2014 (10 year flood event)
Inundation
3.4 ft
0 ft
Water on Roadway
>= 2 ft
>= 1 ft and < 2 ft
>= .5 ft and < 1 ft
>= .1 ft and < .5 ft
< .1 ft
Somerset County, MD


Crisfield, Maryland
Mean Sea Level 2050 (10 year flood event)
Inundation
3.4 ft
0 ft
Water on Roadway
>= 2 ft
>= 1 ft and < 2 ft
>= .5 ft and < 1 ft
>= .1 ft and < .5 ft
< .1 ft
Somerset County, MD

Pedestrian Access/Wicomico County Schools

- Hundreds of children walk to school each day in Wicomico County but many use dangerous roads with no sidewalks
- Each level of school has a designated distance where students will not be bussed – they must walk
- Resources are limited so
  - Which sidewalk links are existing/missing?
  - Where should sidewalks be installed to connect to the most students?
  - What would be the cost of installing sidewalks at each school and throughout the County?

Property Parcel Cluster Analysis:



Identified Priority Sidewalk:

ESRGC: Open Source Geodashboards

- First began creating geodashboards in 2010
- Open source solutions from the start
  - Many client-partners are not traditional GIS software users
  - Want to avoid recurring software costs
- Server-side: Node.js, PostGRES, Linux in the cloud
- Client-side: HTML 5, Javascript, D3.js, custom libraries
- Mapping: GeoJSON, Leaflet, MapBox, Esri ArcGIS for Server, AGOL

GeoDashboards Examples

- Maryland Data Explorer
  - Economic Development Data Dashboard
- Causes of Chesapeake Bay Pollution
  - A component of the Maryland's BayStat initiative
- Caroline County Emergency Services Dashboard
- Give Where You Live
  - Maryland Dept of Housing and Community Development
- Chesapeake Bay WIP Dashboard
  - Maryland Dept of Agriculture
- Smart Energy Investment Dashboard
  - Maryland Energy Administration

Salisbury University - Cla | MLB.tv | MLB.com | ESRGC - GIS for Maryland | Data Explorer

apps.esrgc.org/dashboards/countycomparison/#compare/counties/set/overview/geo/19,45,39,47

ArcGIS Server Manag | NOAA National Wea | Payroll Bureau | MD State Geographic | RAMPP - Risk Assess | Spotify Web Player | WS_FTP Server Web | Health Account Bene | Other bookmarks

MARYLAND DATA Explorer

See How Maryland Compares

States ■ Metros ■ Counties

MARYLAND

Counties | States | Metros | Reset | Select All | List

Compare Maryland's 24 major jurisdictions on a variety of economic and demographic factors, or create county groups for regional comparison.

Each area of the State offers unique advantages, from natural resources and transportation infrastructure to workforce skills and availability.

Choose a set of statistics:

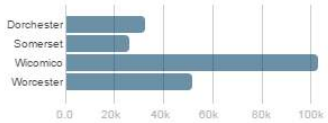
Overview | Demographics | Education | Taxes | Geography | Transportation | Quality of Life | Workforce

Maryland ranks first among the states in the percentage of professional and technical workers in the workforce.

Chart Tools

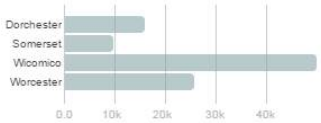
View Table | Download All

Total Population, 2015
Demographics



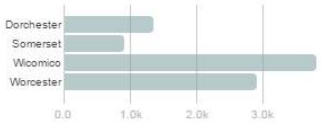
Source: U.S. Census Bureau, Date of Data: 2015

Labor Force
Workforce



Source: Maryland Department of Labor, Licensing and Regulation, Date of Data: 2014

Unemployment
Workforce



Source: Maryland Department of Labor, Licensing and Regulation, Date of Data: 2014

Median Sale Price of a Home ($ Dollars)
Quality of Life

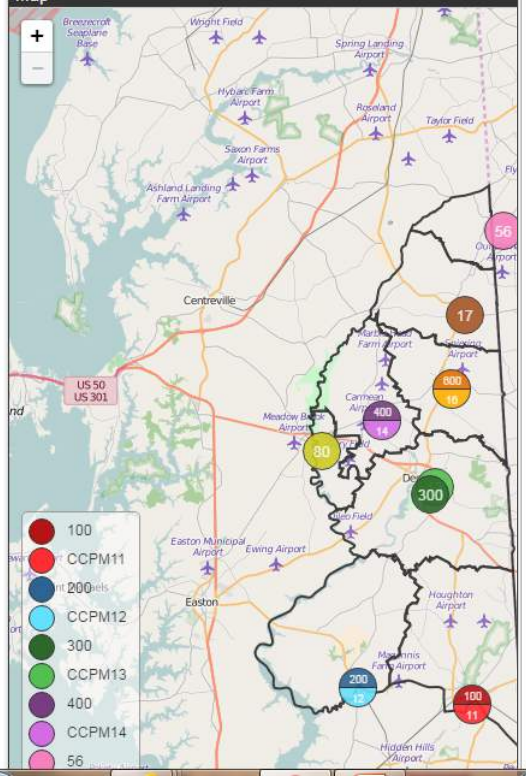
Median Household Income ($ Dollars)
Demographics

Local Personal Income Tax Rate (%)
Taxes

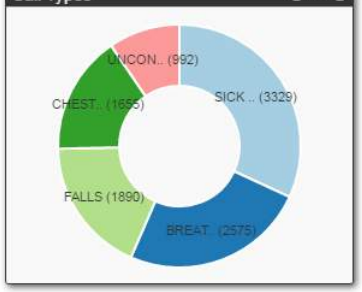
Caroline County Emergency Services Dashboard

v0.4.30

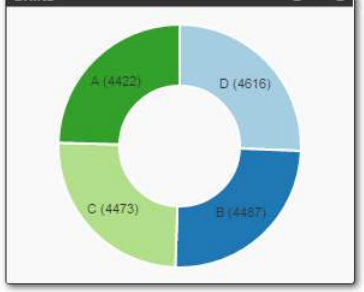
Map

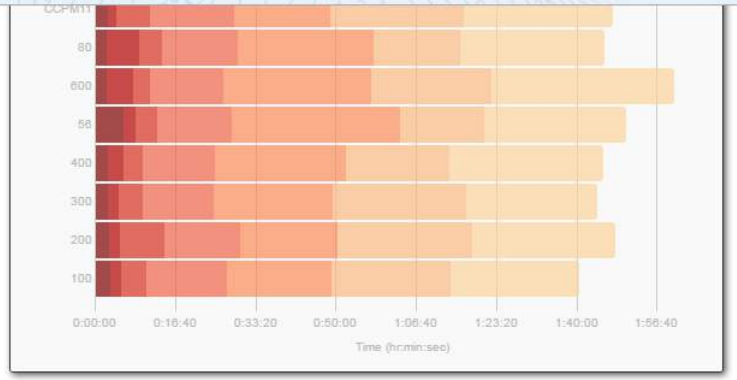


Call Types

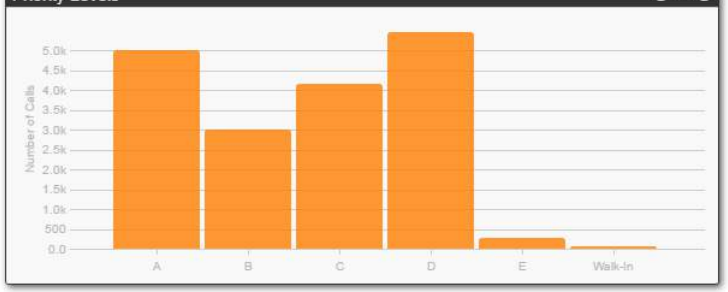


Shifts

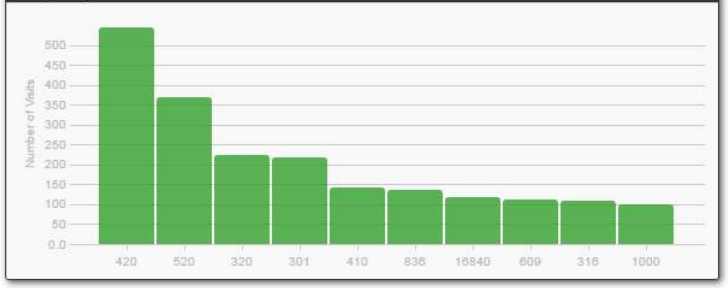




Priority Levels



Frequently Visited Destinations

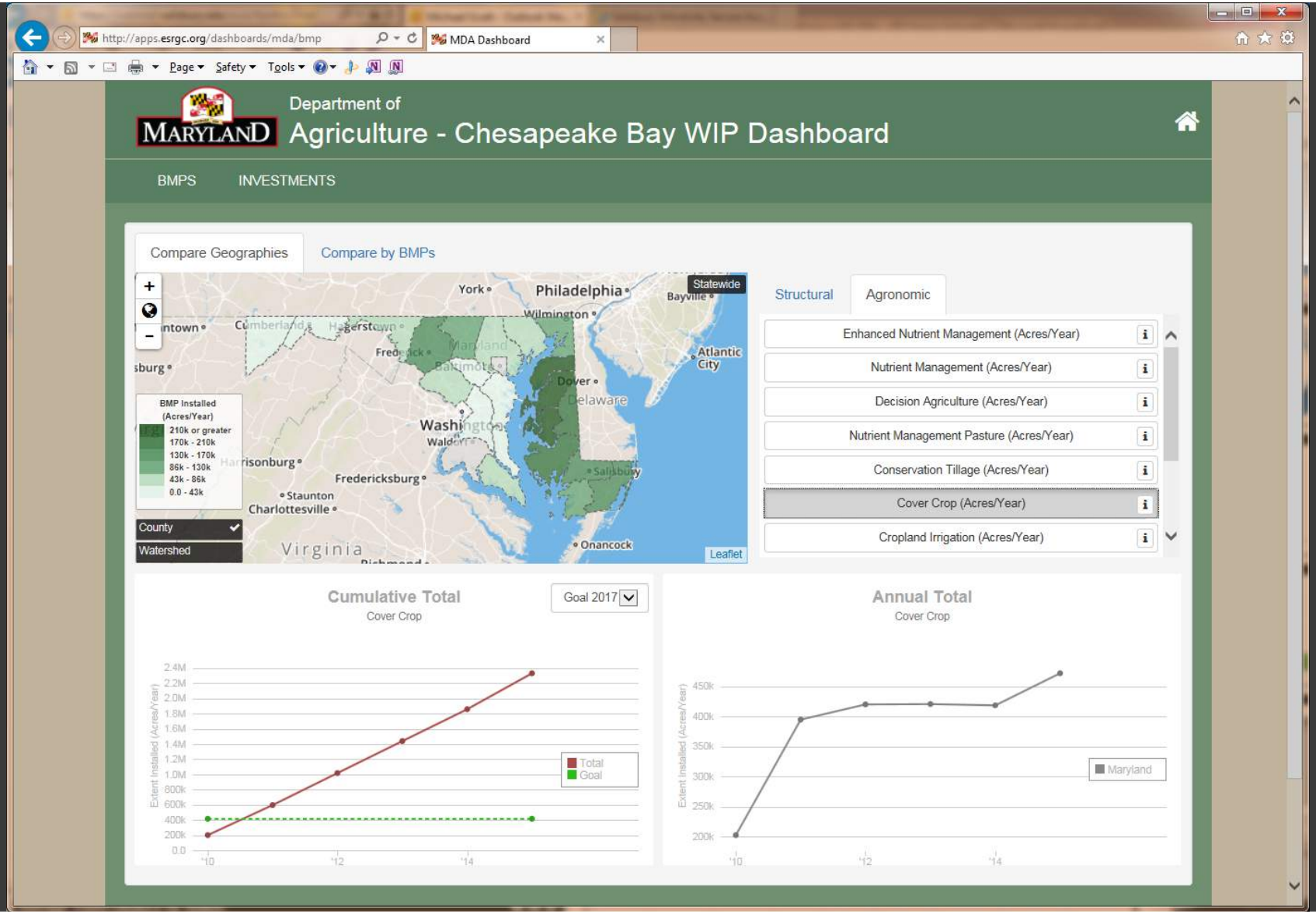


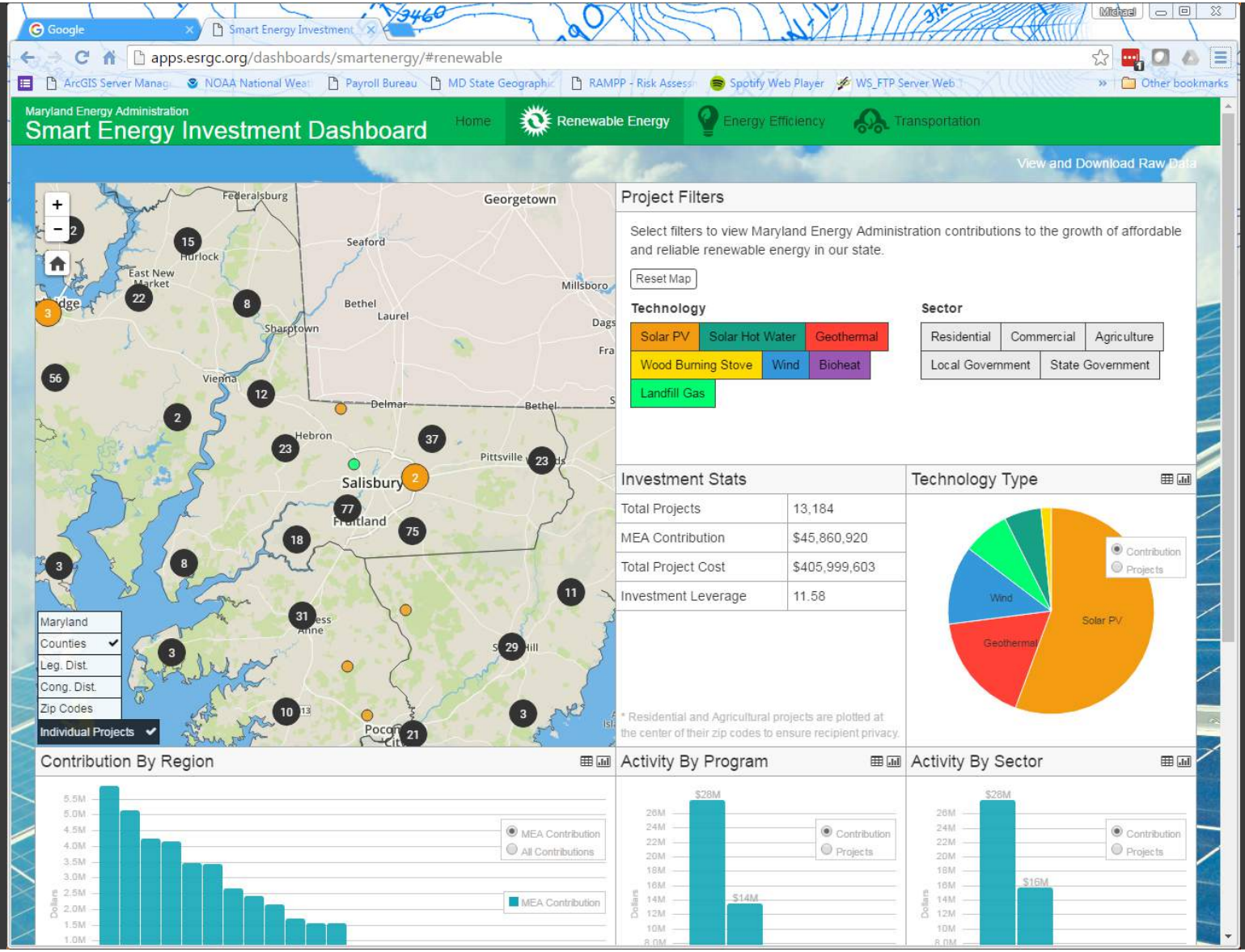
Average Travel Distance By Station

All Calls Responded To

Showing **1 - 10** of **24354** Prev Next

CFS Number	Incident Number	Call Type	Priority	Station	Unit	Call Time	Dispatch Time	Arrival Time
8684	2016-00000206	SICK PERSON	C	CCPM12	CCPM12	04/02/2016 21:13:29	04/02/2016 21:14:49	04/02/2016 21:33:32
8684	2016-00000206	SICK PERSON	C	CCPM12	CCPM12	04/02/2016 21:13:29	04/02/2016 21:14:49	04/02/2016 21:33:32
8675	2016-00000384	FALLS	B	CCPM13	CCPM13	04/02/2016 19:11:54	04/02/2016 19:13:17	04/02/2016 19:19:46
8675	2016-00000384	FALLS	B	CCPM13	CCPM13	04/02/2016 19:11:54	04/02/2016 19:13:17	04/02/2016 19:19:46
8671	2016-00000220	ASSAULT	A	CCPM11	CCPM11	04/02/2016 18:34:43	04/02/2016 18:35:43	04/02/2016 18:41:54
8671	2016-00000205	ASSAULT	A	CCPM12	A12	04/02/2016 18:34:43	04/02/2016 18:36:07	04/02/2016 18:41:57
8671	2016-00000220	ASSAULT	A	CCPM11	CCPM11	04/02/2016 18:34:43	04/02/2016 18:35:43	04/02/2016 18:41:54
8671	2016-00000205	ASSAULT	A	CCPM12	A12	04/02/2016 18:34:43	04/02/2016 18:36:07	04/02/2016 18:41:57
8658	2016-00000175	SICK PERSON	A	CCPM17	CCPM17	04/02/2016 17:02:17	04/02/2016 17:03:24	04/02/2016 17:10:18


http://apps.esrgc.org/dashboards/mda/bmp
MDA Dashboard
Page
Safety
Tools
MARYLAND
Department of
Agriculture - Chesapeake Bay WIP Dashboard
BMPS
INVESTMENTS
Compare Geographies
Compare by BMPs
Statewide
York
Philadelphia
Bayville
Wilmington
Cumberland
Hagerstown
Frederick
Maryland
Baltimore
Atlantic City
Dover
Delaware
Washington
Waldorf
Harrisonburg
Fredericksburg
Staunton
Charlottesville
Salisbury
Onancock
Virginia
Leaflet
BMP Installed (Acres/Year)
210k or greater
170k - 210k
130k - 170k
86k - 130k
43k - 86k
0.0 - 43k
County
Watershed
Structural
Agronomic
Enhanced Nutrient Management (Acres/Year)
Nutrient Management (Acres/Year)
Decision Agriculture (Acres/Year)
Nutrient Management Pasture (Acres/Year)
Conservation Tillage (Acres/Year)
Cover Crop (Acres/Year)
Cropland Irrigation (Acres/Year)
Cumulative Total
Cover Crop
Goal 2017
Extent Installed (Acres/Year)
2.4M
2.2M
2.0M
1.8M
1.6M
1.4M
1.2M
1.0M
800k
600k
400k
200k
0.0
'10
'12
'14
Total
Goal
Annual Total
Cover Crop
450k
400k
350k
300k
250k
200k
Maryland


apps.esrgc.org/dashboards/smartenergy/#renewable
Maryland Energy Administration
Smart Energy Investment Dashboard
Home
Renewable Energy
Energy Efficiency
Transportation
View and Download Raw Data
Project Filters
Select filters to view Maryland Energy Administration contributions to the growth of affordable and reliable renewable energy in our state.
Reset Map
Technology
Solar PV
Solar Hot Water
Geothermal
Wood Burning Stove
Wind
Bioheat
Landfill Gas
Sector
Residential
Commercial
Agriculture
Local Government
State Government
Investment Stats
Total Projects 13,184
MEA Contribution $45,860,920
Total Project Cost $405,999,603
Investment Leverage 11.58
* Residential and Agricultural projects are plotted at the center of their zip codes to ensure recipient privacy.
Technology Type
Contribution
Projects
Solar PV
Wind
Geothermal
Maryland
Counties
Leg. Dist.
Cong. Dist.
Zip Codes
Individual Projects
Salisbury
Contribution By Region
MEA Contribution
All Contributions
Activity By Program
$28M
$14M
Activity By Sector
$28M
$16M
Dollars

Google | DBM Dashboard

esrgc.org/dashboards/dbm/home/dashboard#group

ArcGIS Server Manag | NOAA National Wea | Payroll Bureau | MD State Geographic | RAMPP - Risk Assess | Spotify Web Player | WS_FTP Server Web | Other bookmarks

MARYLAND

DEPARTMENT OF
BUDGET AND MANAGEMENT

State of Maryland Operating Budget

State / Agency Group

Select Agency: Agency Group

Break Down By: Expense

Include Reimbursable Funds

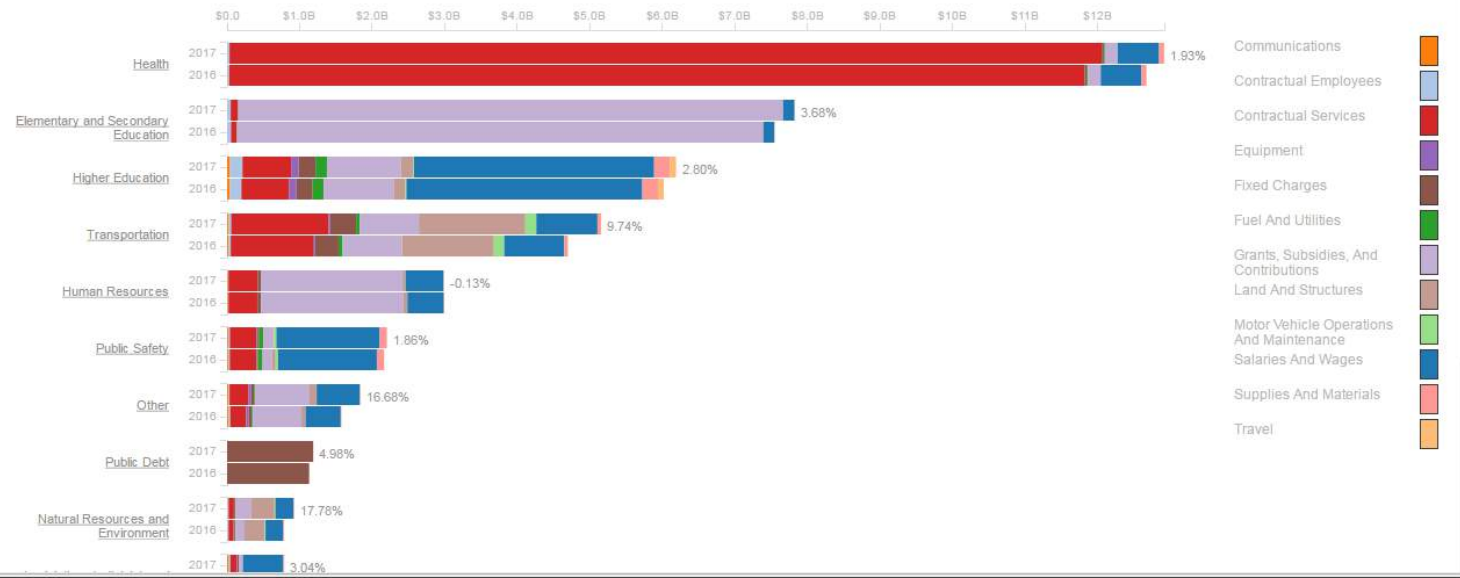
Budget Years: 2016 | 2017

Order By: Total

Percentage represents change over time

Agency Groups

2017 (Enacted): $42,262,071,879 - 2016 (Working): $40,441,609,695



Google | DBM Dashboard

esrgc.org/dashboards/dbm/home/dashboard#unit/department of transportation/transportation

ArcGIS Server Manag | NOAA National Wea | Payroll Bureau | MD State Geographic | RAMPP - Risk Assess | Spotify Web Player | WS_FTP Server Web | Other bookmarks

MARYLAND

DEPARTMENT OF
BUDGET AND MANAGEMENT

State of Maryland Operating Budget

State / Agency Group / Transportation Group / Department Of Transportation

Select Agency: Department Of Transportation

Break Down By: Expense

Include Reimbursable Funds

Budget Years: 2016 | 2017

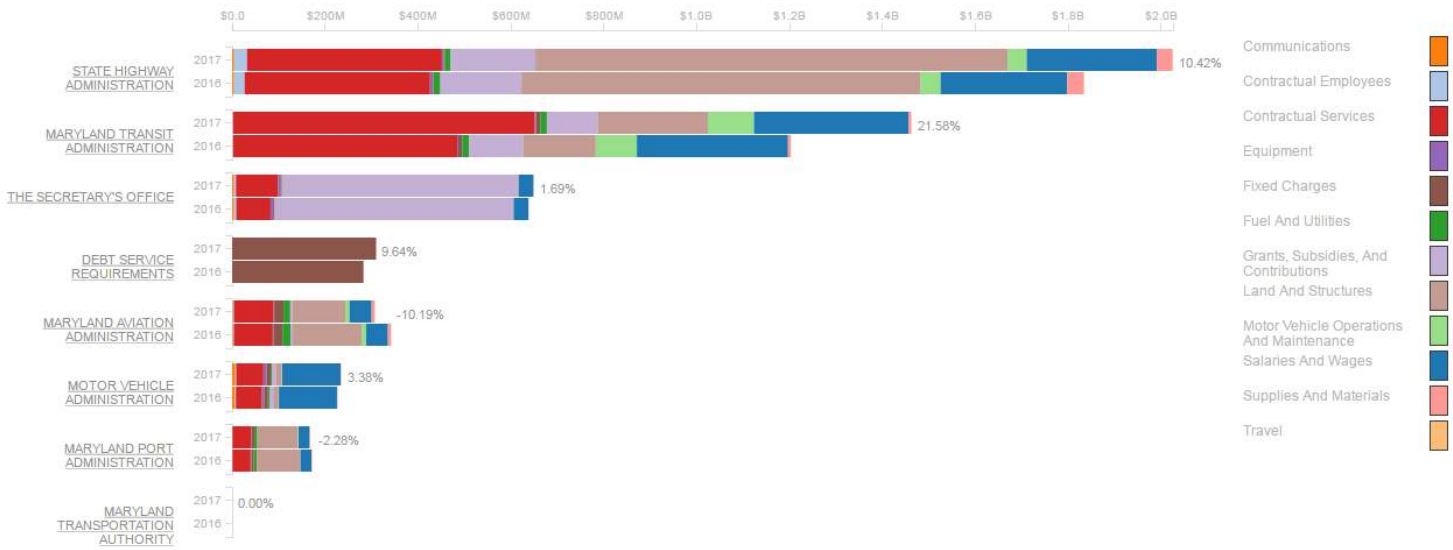
Order By: Total

Percentage represents change over time

Unit(s)

Department Of Transportation

2017 (Enacted): $5,156,591,466 - 2016 (Working): $4,699,097,425



Agricultural GIS Project

- Brand-new effort, funded through the regional councils via the Rural Maryland Prosperity Investment Fund
- Work with farmers directly to leverage existing GIS datasets and those collected by their precision ag equipment to drive efficiency and effectiveness
- Example projects might be:
  - Nutrient management plan support
  - Deer damage assessment and mitigation actions
  - Organic farming data management and geolocation
- Contact Mary Buffington (mebuffington@salisbury.edu)

ESRGC – Proud MSGIC Sponsor!

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- Mary Buffington, GISP
- Ryan Mello, GISP
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- John Talbot
- Katy Maglio
- Tyler Wilson
- Dawn Johnson

- Dr. Michael Scott, GISP
- Dr. Arthur Lembo
- Dr. Stuart Hamilton

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